

**ABSTRACT**

A PET scanner includes a scintillator block and a plurality of photodetectors, each of which has a field of view that includes a portion of the scintillator block. An optical element is disposed between the scintillator block and the plurality of photodetectors. The optical element has a first layer and a second layer. The first layer has a central region and a peripheral region separated by a first gap. The second layer has at least a first region and a second region separated by a second gap.

5